

1    **Claims:**

1           **1.**    Medium access control device for a mobile network station or an access  
2    point in a wireless local area network, comprising controlling means (302), processing  
3    means (303) and transmitting and receiving means (304); said controlling means (302)  
4    being arranged to control transmission and reception of radio frequency data signals  
5    containing data symbols; said transmitting and receiving means (304) being arranged  
6    for transmission and reception of electromagnetic data signals; said processing means  
7    (303) being arranged for detecting a first signal portion in a received data signal,  
8    said processing means further comprising:  
9    said processing means (303) are also arranged for detecting a second signal portion in  
10   said received data signal, wherein said second signal portion follows after said first  
11   signal portion, and said second signal portion comprises a second electromagnetic  
12   signal coding different from a first electromagnetic signal coding of said first signal  
13   portion.

1           **2.**    The method according to claim 1, characterized in that said processing  
2    means, in order to detect said carrier signal in said second signal portion, is arranged  
3    for sampling a first part of said second signal portion with a first duration, a following  
4    second part of said second signal portion with a second duration and a final third part of  
5    said second signal portion with a third duration from said second received data signal,  
6    wherein said first duration equals said third duration, and the duration of the sum of  
7    said first, second, and third duration equals a complete data symbol duration;  
8    and said processing means, in order to detect said carrier signal in said second signal  
9    portion, is further arranged for determining an auto-correlation between said first part  
10   of said second signal portion and said third part of said second signal portion.

1           **3.**    The method according to claim 2, characterized in that the step of detecting  
2    the second signal portion further comprises filtering the second signal portion with a  
3    complex-valued processing filter of two IIR filters with biquad structure, capable of  
4    sampling said second signal portion at a sampling frequency which is twice the  
5    frequency of said second signal portion.

1        4. The method according to claim 2, characterized in that said first signal portion  
2 comprises OFDM as said electromagnetic first signal coding and said second signal  
3 portion comprises OFDM as said electromagnetic second signal coding

1        5. The method according to claim 2, characterized in that said first signal  
2 portion comprises BPSK, QPSK or other PSK as said first electromagnetic signal  
3 coding and said second signal portion comprises CCK, QAM or PSK as said second  
4 electromagneticsignalcoding.

1        6. A method to be carried out by a medium access control device for a mobile  
2 network station or an access point in a wireless local area network , said medium access  
3 control device comprising controlling means, processing means and transmitting and  
4 receiving means; said controlling means being arranged to control transmission and  
5 reception of radio frequency data signals containing data symbols; said transmitting and  
6 receiving means being arranged for transmission and reception of electromagnetic data  
7 signals; said method comprising the steps of:

8 - detecting a first signal portion in a received data signal;  
9 - detecting a second signal portion in said received data signal, wherein said  
10 second signal portion follows after said first signal portion, and said second signal  
11 portion comprises a second electromagnetic signal coding different from a first  
12 electromagnetic signal coding of said first signal portion.